Graphing Planes in Three-Space

$$Ax + By + Cz = D$$

If you have 2 variables then the graph is a line

3 variables the graph is a plane

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Example

$2x + 2y + z = 8$

4,0,0 2,0,4 0,2,4

2,2,0 3,1,0 0,4,0

1,1,4 0,0,8

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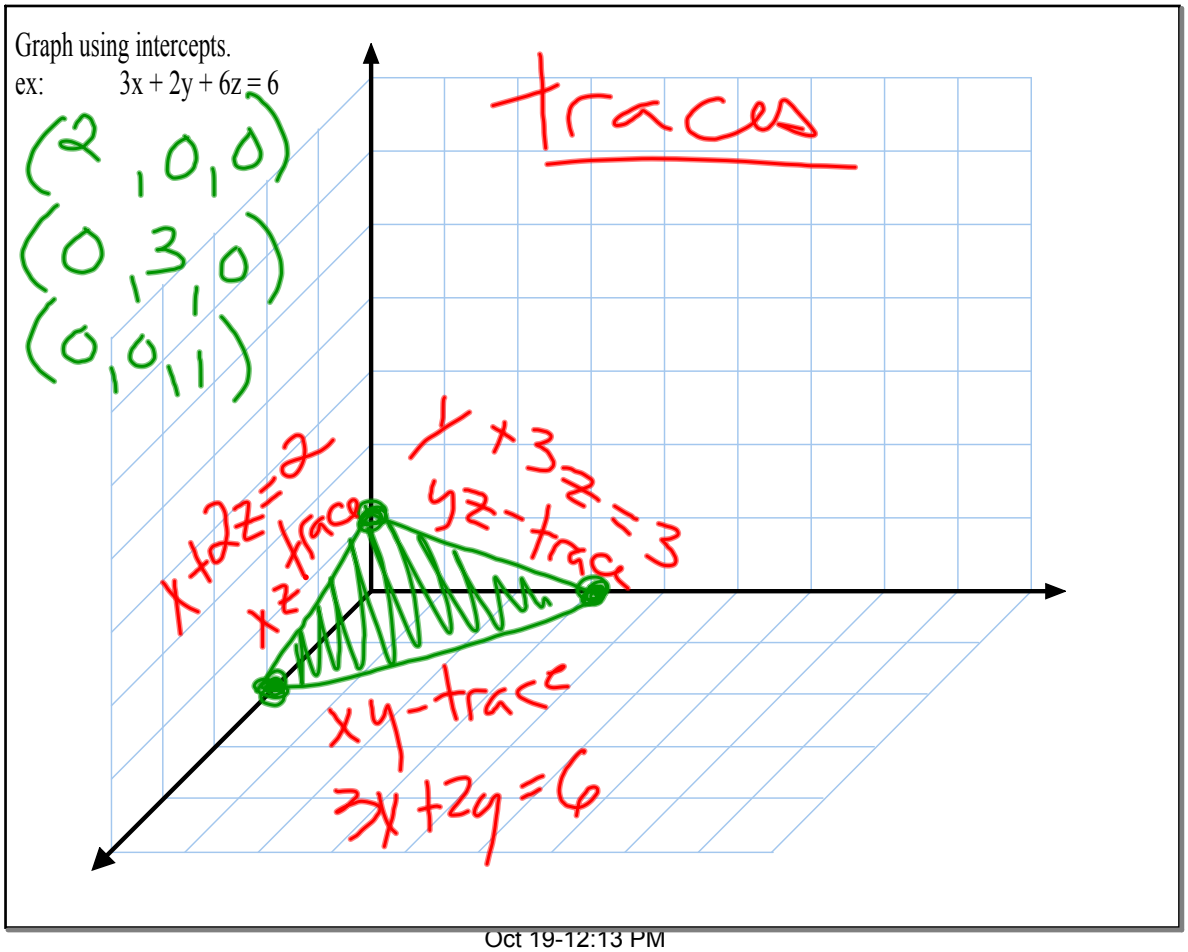
Graph using intercepts.

ex: $3x + 2y + 6z = 6$



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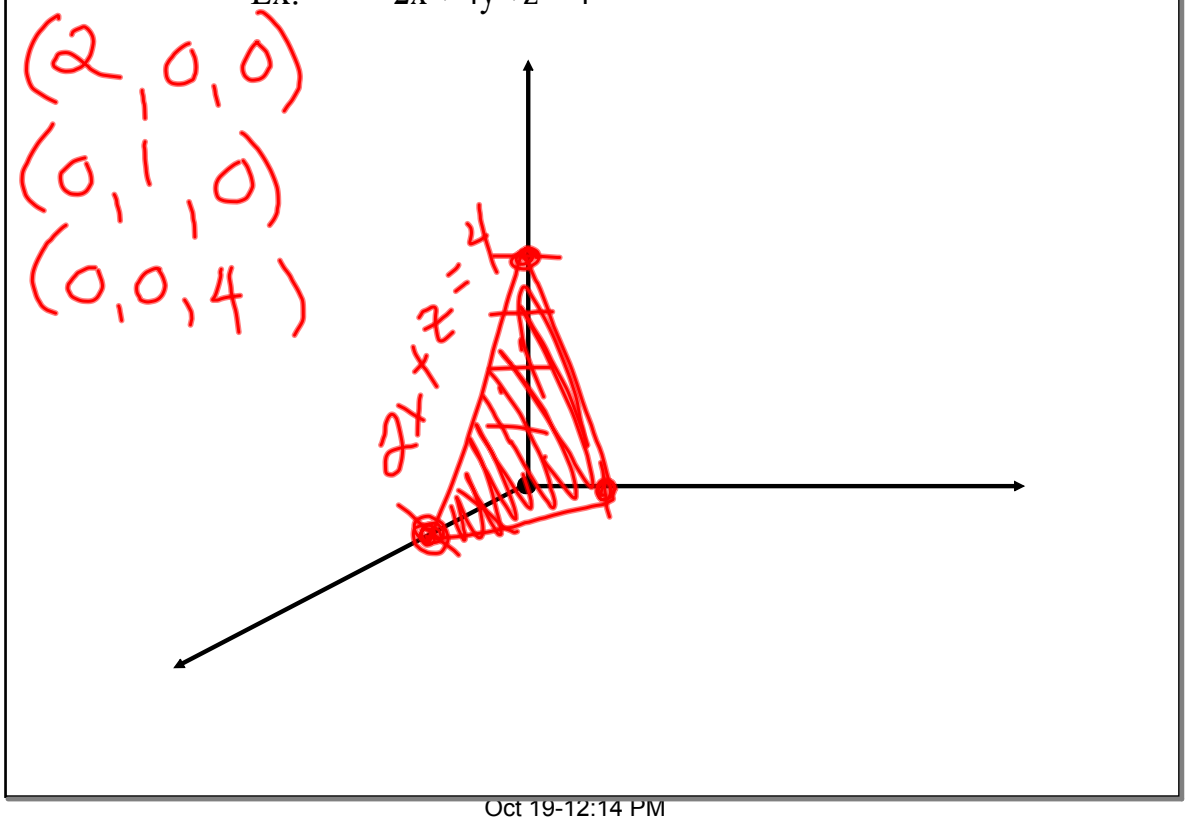
Ex: $2x + 4y + z = 4$



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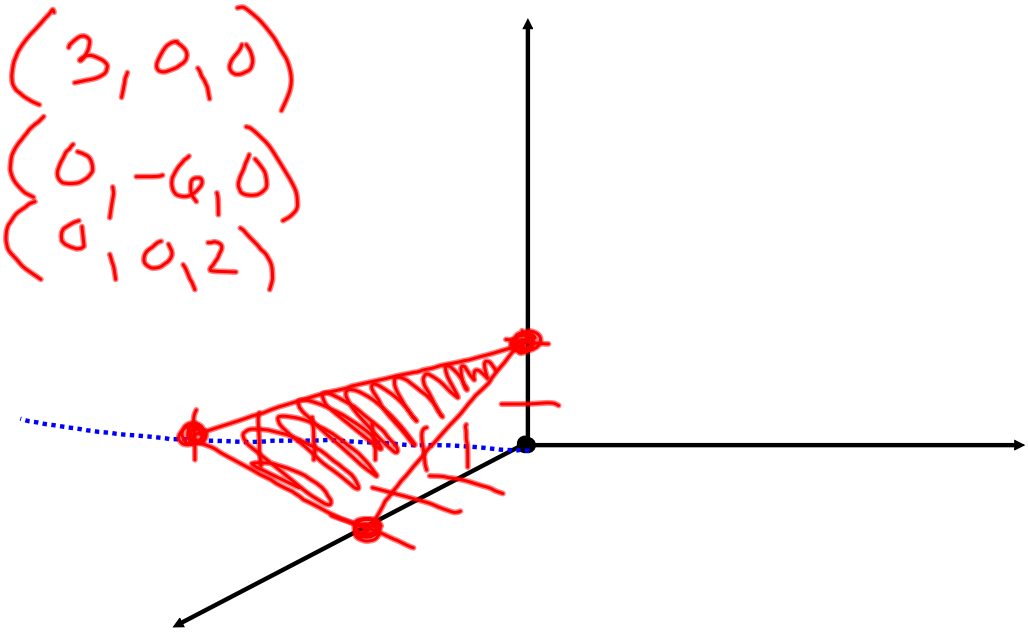
Ex: $2x - y + 3z = 6$

$(3, 0, 0)$

$(0, -6, 0)$

$(0, 0, 2)$



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Ex: $2x + 3z = 6$

What's missing?

$(3, 0, 0)$

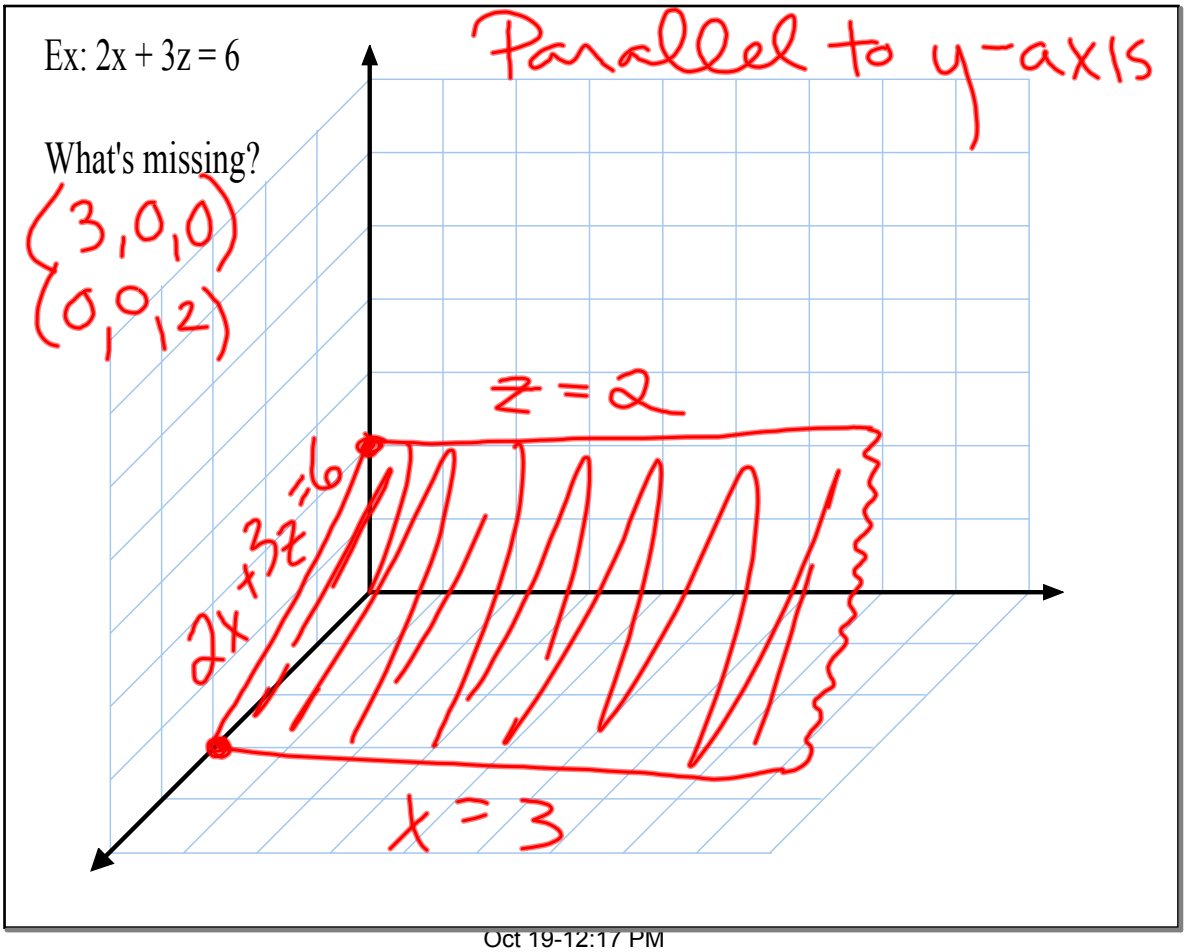
$(0, 0, 2)$

Parallel to y-axis

$z = 2$

$2x + 3z = 6$

$x = 3$



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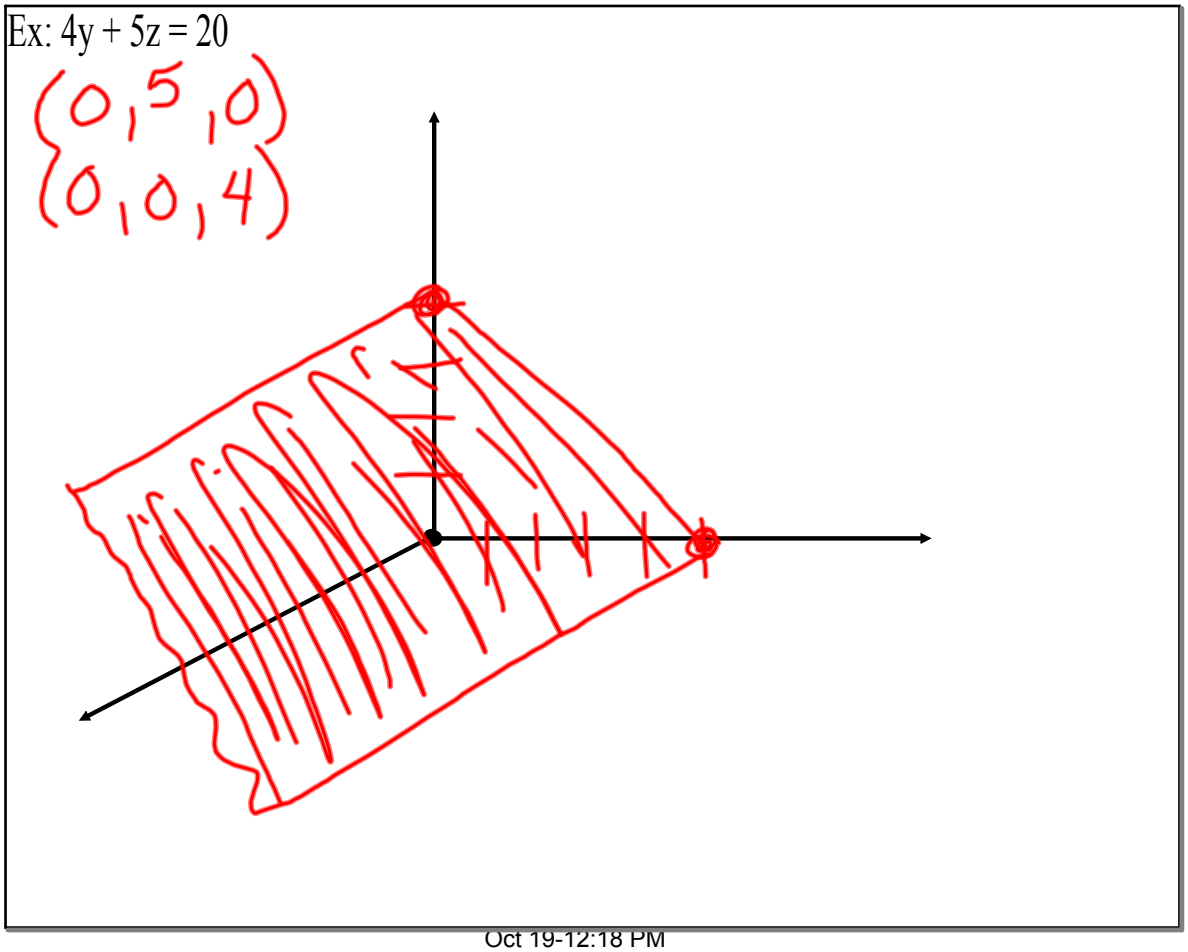
Ex: $4y + 5z = 20$



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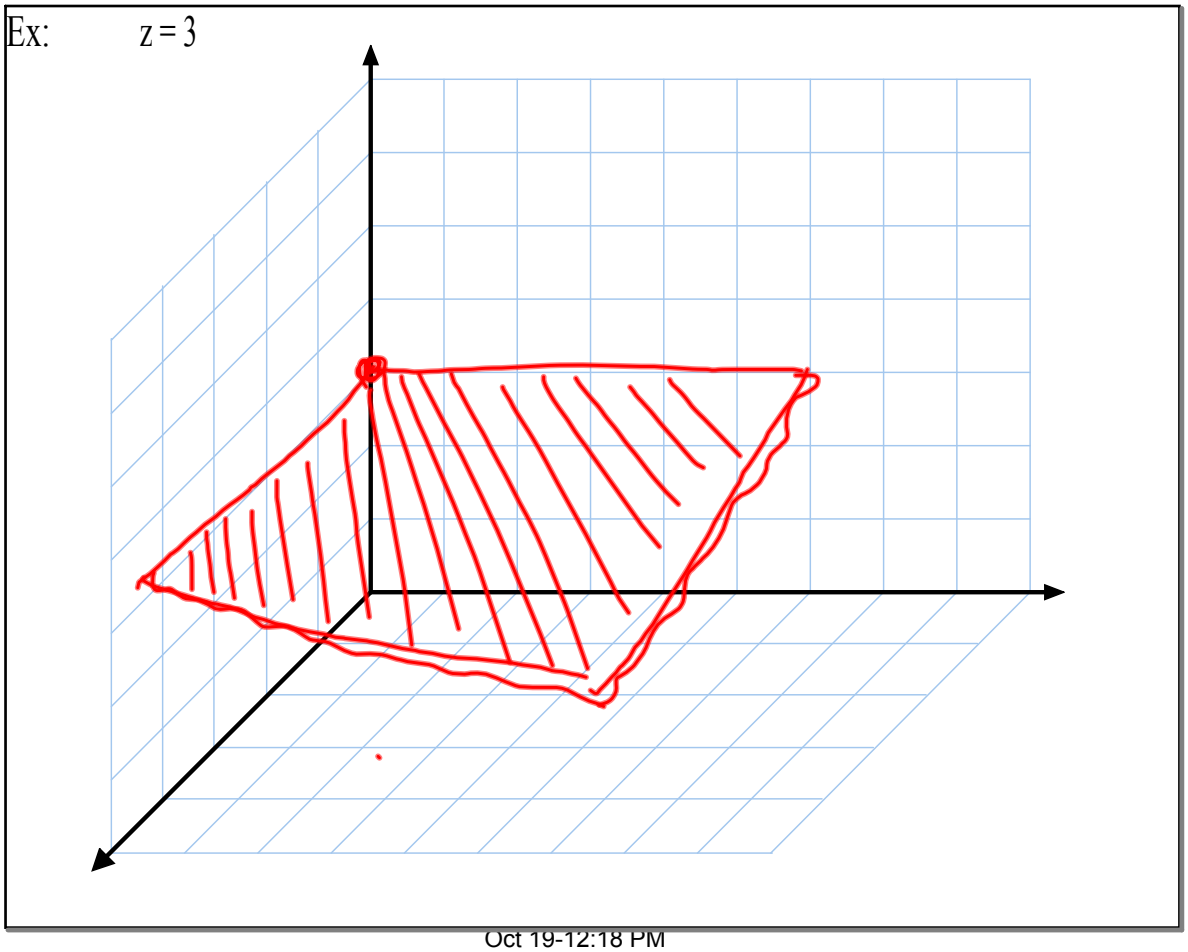
Ex: $z = 3$



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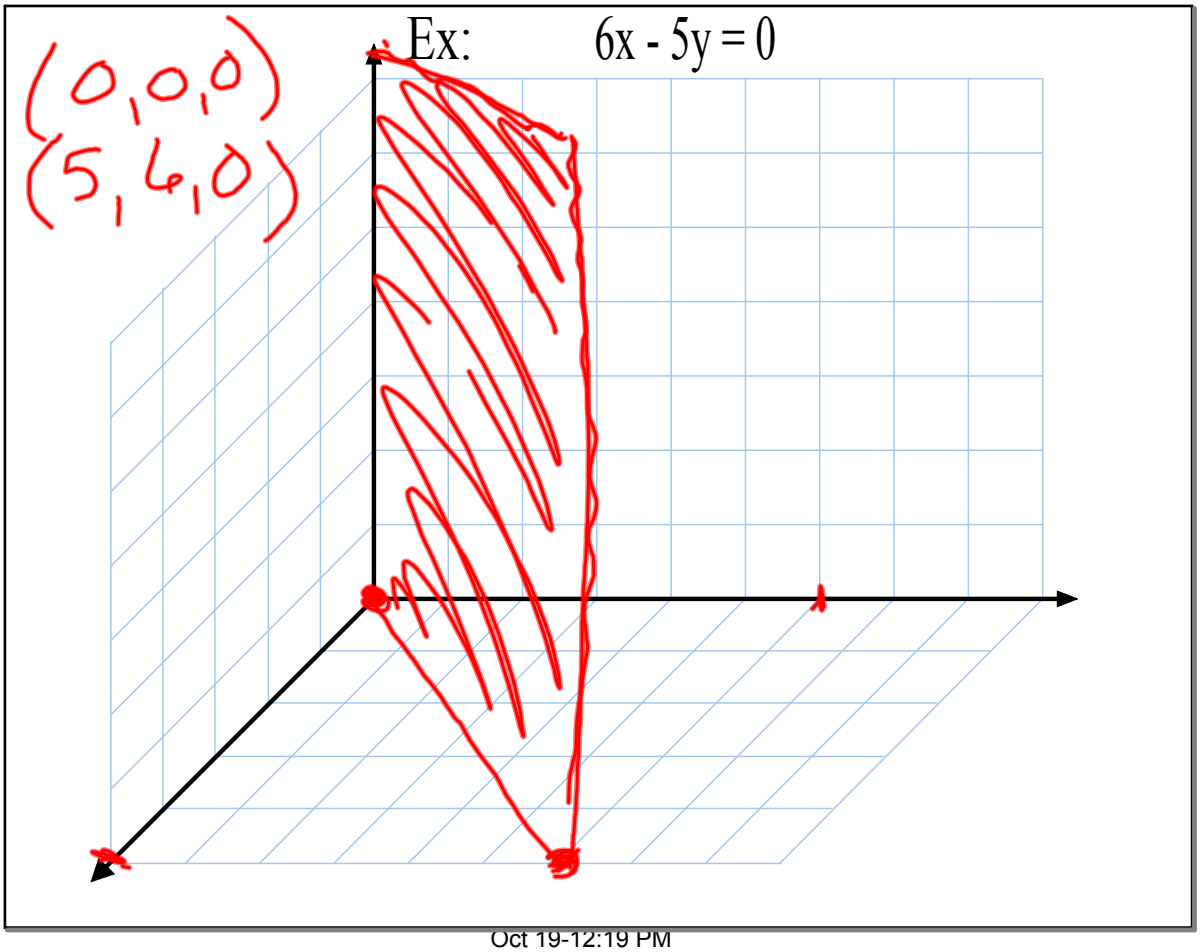

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